WHAT IS CLAIMED IS:

1. A method of depositing a silicon carbide on a substrate from a vapor phase or a liquid phase, comprising the steps of:

depositing a silicon layer on the substrate;

doping the silicon layer with an impurity composed of at least one element selected from a group consisting of N, B, Al, Ga, In, P, As, Sb, Se, Zn, O, Au, V, Er, Ge, and Fe, to form a doped silicon layer; and

carbonizing the doped silicon layer into a silicon carbide layer of the silicon carbide doped with the impurity.

2. A method as claimed in claim 1, wherein the silicon layer depositing step, the doping step, and the carbonizing step are carried out during epitaxially growing a thin film on the substrate by the use of a chemical vapor deposition technique;

the silicon layer deposition step being carried out by using a gas of a silane group or a dichlorosilane group as a silicon raw material while the carbonizing step is carried out by the use of an unsaturated carbohydrate gas.

3. A method as claimed in claim 1, wherein the silicon layer depositing step is followed by the doping step and the carbonizing step is carried out after the doping step.

4. A method as claimed in claim 1, wherein the silicon layer depositing step and the doping step are simultaneously carried out and are followed by the carbonizing step.

5. A method as claimed in claim 1, wherein the silicon layer depositing step and the doping step are simultaneously carried out while the carbonizing step is carried out when a predetermined time lapses after the start of both the silicon depositing and the doping steps.

6. A method as claimed in claim 1, wherein the silicon carbide layer doped with the impurity is deposited to a desired thickness by repeating a process unit composed of the silicon depositing step, the doping step, and the carbonizing step a plurality of times.

7. A method as claimed in claim 6, wherein an amount of impurity is varied during each doping step of the unit processes to provide a plurality of silicon carbide layers which have different impurity concentrations in a thickness direction, respectively.

8. A method as claimed in claim 1, wherein the doping step controls an amount of impurity so that impurity concentrations in the silicon carbide fall within a range between $1 \times 10^{13} / cm^3$ to $1 \times 10^{21} / cm^3$.

9. A method as claimed in claim 1, wherein the doping step controls an amount of impurity so that an impurity concentration gradient falls within a range between $10 \times 10^{18}/cm^4$ and $4 \times 10^{24}/cm^4$ in a thickness direction of the silicon carbide layer.

10. A method as claimed in claim 1, wherein the substrate has a surface which is structured by either one of a single crystal silicon, a silicon carbide of a cubic system, and a silicon carbide of a hexagonal system while the silicon carbide layer deposited on the surface of the substrate is structured by silicon carbide of a cubic system or a hexagonal system.

11. A method as claimed in claim 1, further comprising the step of:

removing the substrate from the silicon carbide layer after the formation of the doped silicon carbide, to leave a silicon carbide wafer.

12. A method as claimed in claim 6, wherein the doping step of each process unit is carried out by varying a species of the impurities from one to another at each process unit to provide a pn junction in the doped silicon carbide layer.

13. A method as claimed in claim 1, further comprising the step of:

using, as a seed crystal, the doped silicon carbide obtained in claim 1; and

further growing a silicon carbide on the seed crystal by a vapor deposition method, a sublimation re-crystallization method, or a liquid deposition method.

14. A silicon carbide having a region which has an impurity concentration gradient between $1 \times 10^{22}/cm^4$ and $4 \times 10^{24}/cm^4$ in the thickness direction.

15. A semiconductor device having the silicon carbide manufactured by the method claimed in claim 1.

16. A semiconductor device structured by the silicon carbide claimed in claim 14.

17. A method of depositing a silicon carbide doped with an impurity, comprising the steps of:

doping the impurity into a silicon to form a doped silicon; and

carbonizing, after the doping, the doped silicon into the silicon carbide.

18. A method as claimed in claim 17, further comprising the step of preparing an undoped silicon prior to the doping step.

19. A method as claimed in claim 17, wherein the impurity is composed of at least one element selected from a group consisting of N, B, Al, Ga, In, P, As, Sb, Se, Zn, O, Au, V, Er, Ge, and Fe.